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May 12 1950

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Subject: Proposal for 100 Watt Engine Driven Generator

Reference: (A) [redacted] letters dated  
January 10, January 23 and April 6, 1950  
(B) Central Intelligence Agency letter dated  
5 May 1950

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Enclosure: (A) Cost Breakdown Sheet

Gentlemen:

With reference to recent discussions between representatives of the Engineering Department, CIA, and [redacted] of [redacted], the following specifications, being a revision of the proposed specifications given in the above referenced letters, have been agreed upon:

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Generator Output:

100 watts at 80% power factor, 115 volts, 400 cycles, nominal, with frequency and voltage regulation within 10% of nominal. Output voltage and frequency to be adjustable by mechanical and/or electrical means. Generator shall be of a permanent magnet type having better than 70% efficiency from the electrical machine. A visual means will be provided to indicate when nominal output has been attained.

Engine:

A prime mover will be supplied which will provide for operation with any gasoline having octane rating between 60 and 80. Any lubricating oil between No. 10 and No. 40 S. A. E. viscosity may be used after expenditure of lubricant as supplied with the equipment on delivery. An ignition system will be provided which will be satisfactory for operation of the engine and will also be shielded to permit the use of radio receiving equipment without excessive RF noise interference. Provisions will be made to suppress both radiated and conducted RF noise.

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U.S. Air Force Specification #7274 will be followed. The limits set up in this specification will be changed to a maximum 2-1/2 microvolts radiated noise and maximum conducted noise of 50 microvolts between 300 and 1600 KC. 1600 KC and above will be held to 5 microvolts. Method of tests to be in accordance with those outlined in Specification #7274. Every effort will be made to improve the noise figure in the spectrum below 1500 KC. The engine shall operate and start with reliability between 0 and 110 degrees F and 0 to 10,000 feet altitude. A muffler will be provided external to the equipment on the research model giving at least 60% noise quieting below open-exhaust condition.

General:

The overall equipment will not exceed 300 cubic inches maximum volume, including hand cranking mechanism, and the weight will not exceed 9 pounds dry. Provisions will be made within the above stated limits to provide a fuel supply for two hours of operation, spare parts for normal maintenance, and tools. With respect to the surfaces exposed to the elements, all finishes will be in accordance with JAN specifications. An instruction manual giving instructions for repair, maintenance and preservation after operation will be provided in the form of reproducible vellum copies as a part of the development program.

It is estimated that nine months will be required to supply a model of this equipment to CIA meeting the above specifications. We propose that this work be accomplished in the following manner:

- (1) Research leading to a paper model to be accomplished in 90 days. At the end of this 90-day period it is suggested that representatives of CIA personally review the progress at the plant of
- (2) After approval of these preliminary plans, the actual development of a piece of equipment meeting the requirements of the above mentioned paper model will be carried to completion and the model tested and submitted to CIA for approval. This equipment could then be used as a guide in manufacturing production equipment. It is estimated that this latter phase will consume approximately six months.

Progress reports during the development phase will be provided. At the end of the development phase, complete engineering reports will be furnished along with sketches showing the method of manufacture.

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We wish to point out that a patent application has been made by [redacted] on an engine driven power supply of a similar nature to that covered in this letter. Our application covers certain features such as clutching arrangements, mechanical gear shifting assemblies, and other parts peculiar to our approach on utilization of a 2-cycle semi-diesel principle engine driving a permanent magnet type generator. In order to protect your agency in the event a patent is granted on this device, we are willing to grant free license for your agency's use of those principles in the event they may be utilized.

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With relation to the particular device covered by the specifications in this letter and any improvements or development of new principles resulting from this development, we agree to accept the terms of Articles 10, 11 and 12 of your contract form.

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